

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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Epidemiologic Notes and Reports

Increased Lead Absorption in Children of Lead Workers — Vermont

Fifteen (56%) of 27 children of employees at a lead storage battery plant in Bennington, Vermont, were found in September 1976 to have elevated lead levels.* Household dust, contaminated with lead carried home on workers' clothing, was the apparent source of exposure. Elevated erythrocyte protoporphyrin (EP) levels ($\geq 60 \mu\text{g}/100\text{ml}$ whole blood*) were noted in 5 (18.5%) of the children. Age-matched neighborhood control children had significantly lower lead and EP levels than workers' children. Some workers also were found to have elevated blood lead levels and symptoms and signs of lead toxicity; lead oxide powder used on battery grids was the probable contamination source.

Twenty-two families of lead workers having children 1-6 years of age were matched with 22 neighborhood families with children of the same age. Mean blood lead and EP levels in the 27 workers' children were significantly higher ($p < 0.003$) than levels in the 32 control children (mean lead levels: 31.8 vs. 21.4 $\mu\text{g}/100\text{ml}$; EP level: 42.2 vs. 28.2 $\mu\text{g}/100\text{ml}$).

Presence of lead-based paint was not different between workers' and control homes: 12 workers' houses and 12 control houses had elevated concentrations** of lead in paint. Elevated levels of lead in water ($\geq 0.05 \text{ mg/l}$) were noted in 3 of 22 control houses and 2 of 22 workers' houses. In contrast, lead concentrations in household dust were significantly higher ($p < 0.001$) in workers' homes than in control homes (mean: 2,239 vs. 718 ppm). House dust lead concentrations were positively correlated with children's EP levels (Kendall's Tau = 0.38, [3] $p < 0.01$) and blood lead levels (Tau = 0.244, $p = .08$).

Thirty-six workers who were selected as having significant lead exposure were found to have a mean blood lead level of 61.6 $\mu\text{g}/100\text{ml}$; 5 (14%) workers tested had possible lead neuropathy (decreased wrist or ankle strength); symptoms consistent with lead toxicity—including fatigue (39%), joint pains (27%), anorexia (25%), and abdominal pain (19%)—had been noted over the past year. Blood lead levels of workers were correlated with blood levels of their

children (Tau = 0.32, $p < .02$). All workers interviewed reported changing clothes before leaving work, but 87% washed these clothes at home. Ninety percent showered daily before leaving work.

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Editorial Note: This report represents the first documentation in the United States of increased lead absorption in children of lead storage battery workers. There are approximately 250 such plants in the United States, which employ from 50 to 250 workers each (4). The findings of this study are quite similar to a previous investigation (5) of children of workers employed at a secondary lead smelter in Memphis, Tennessee. In that study, children's and workers' blood lead levels were higher, and 8 children required hospitalization and chelation therapy; no children in the Vermont study were hospitalized. The difference in severity between these outbreaks may be attributable to differences in work practices: All the workers in Vermont changed work clothes before going home whereas very few did so in Tennessee.

Other occupationally-related diseases have been reported in families of workers (6-8) related to contamination of the home environment by soiled work clothing. These outbreaks indicate the need for improved work practices in industries with exposure to dusts containing toxic materials. Provision of work clothing and washing facilities by the Tennessee plant following the investigation essentially eliminated excessive lead exposure for that group of children (5).

References

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2. Kaplan EH, Lilley MD, Schaefer RF, et al: Portable x-ray fluorescence instruments for the analysis of lead in paints. Public Health Rep 90:223-230, 1975
3. National Institute of Occupational Safety and Health: Lead Storage Battery Manufacturers in the United States. Rockville, Maryland, CDC, 1976
4. Nie, NH, Hull CH, Jenkins JG, et al: Statistical Package for the Social Sciences. McGraw Hill, New York, 1975, pp 288-292

*A lead level $\geq 30 \mu\text{g}/100\text{ml}$ with an erythrocyte protoporphyrin (EP) level $\geq 60 \mu\text{g}/100\text{ml}$ whole blood in children is indicative of increased lead absorption (1).

**2 or more surfaces with lead concentrations of 2 mg/cm² or greater as measured by X-ray fluorescence (2).

Lead Absorption — Continued

5. Baker EL, Folland DS, Taylor TA, et al: Lead poisoning in children of lead workers: Home contamination with industrial dust. *N Engl J Med* 296:260-261, 1977

6. Anderson HA, Selikoff IJ, Lillis R, et al: Asbestos-related disease from household exposure to occupational dusts. Presented at the

American Conference of Chest Physicians. New Orleans, Oct 2-4, 1974

7. Eisenbud M, Wanta RC, Dustan C, et al: Non-occupational berylliosis. *J Ind Hyg Toxicol* 31:282-294, 1949

8. Jensen NE, Sneddon IB, Walter AE: Chloracne: Three cases. *Proc R Soc Med* 65:687-688, 1972

*Current Trends***Surveillance of Maternal Deaths — New Jersey**

Upon instituting a new method of surveillance of maternal deaths* in late 1974, the New Jersey State Department of Health learned of 13 more 1974 maternal deaths than the 16 enumerated by the traditional reporting method. This resulted in an apparent 82% increase in the reported maternal mortality rate from 1.7 deaths per 10,000 live births to 3.1 per 10,000. Application of the same methods in 1975 disclosed a total of 27 resident maternal deaths, compared to 14 reported through the traditional system.

Until late 1974, the Maternal and Child Health Program used the following method of identifying maternal deaths: Death certificates were forwarded from the Vital Statistics Program to the Maternal and Child Health Program when these certificates contained key words referring to pregnancy, delivery, and puerperium. Now, in addition to the traditional method, the health department reviews 2 more sources:

1. Annual Maternity Services Reports, routinely received by the Maternal and Child Health Program from all New Jersey hospitals with obstetric services, are studied to find deaths reported by hospitals which are not already known through the death certificate mechanism.

2. Individual reports of possible maternal deaths from medical examiners, physicians, and hospitals are followed up and verified.

Any case enumerated by 1 of these 3 methods is reviewed by the obstetric consultant to the Maternal and Child Health Program.

Editorial Note: It is generally accepted that maternal mortality has decreased nationwide in the last several years. (New Jersey's declined from a mean rate of 3.3 per 10,000 from 1965-1969 to 1.7 in 1973 and 1974, as calculated by the traditional surveillance method.) This study indicates that reliance on death certificates alone as a source of reporting of maternal deaths may be incomplete and that

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*A maternal death is one which occurs while the woman is pregnant or within 42 days after the pregnancy is terminated.

Table I. Summary—Cases of Specified Notifiable Diseases: United States

[Cumulative totals include revised and delayed reports through previous weeks]

DISEASE	7th WEEK ENDING		MEDIAN 1972-1976	CUMULATIVE, FIRST 7 WEEKS		
	February 19, 1977	February 21, 1976		February 19, 1977	February 21, 1976	MEDIAN 1972-1976
Aseptic meningitis	20	34	34	239	273	265
Brucellosis	1	14	1	20	34	13
Chickenpox	4,844	5,582	---	35,316	33,547	---
Diphtheria	—	15	5	2	58	16
Encephalitis						
Primary	8	20	20	81	120	107
Post-Infectious	2	5	5	9	29	29
Hepatitis, Viral						
Type B	218	212	195	1,905	1,694	1,284
Type A	524	647	922	4,230	4,677	5,863
Type unspecified	176	157	---	1,200	1,232	---
Malaria	5	7	7	33	41	36
Measles (rubeola)	1,139	776	684	6,927	3,707	3,707
Meningococcal infections, total	36	33	33	265	216	216
Civilian	36	33	33	263	213	213
Military	—	—	1	2	3	7
Mumps	521	1,247	1,929	3,800	8,001	11,107
Pertussis	8	14	---	87	173	---
Rubella (German measles)	487	381	389	1,763	1,570	1,570
Tetanus	—	—	1	5	4	7
Tuberculosis	491	558	---	3,449	3,929	---
Tularemia	—	—	2	10	19	13
Typhoid fever	7	3	3	40	55	29
Typhus, tick-borne (Rky. Mt. spotted fever)	4	—	—	13	3	9
Venereal Diseases:						
Gonorrhea						
Civilian	14,468	17,557	---	124,918	133,444	---
Military	328	711	---	3,783	4,144	---
Syphilis, primary and secondary	336	490	---	3,014	3,561	---
Civilian	2	5	---	42	55	---
Military	15	33	41	263	216	324
Rabies in animals						

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	—	Poliomyelitis, total:	2
Botulism:	2	Paralytic:	2
Congenital rubella syndrome:	1	Psittacosis:	4
Leprosy:	12	Rabies in man:	—
Leptospirosis: NY St. 1	6	Trichinosis: *Ohio 1, Pa. 1	16
Plague:	—	Typhus, murine: Tex. 3	6

*Delayed report: Trichinosis: Pa. 2 (1976)

Table III
Cases of Specified Notifiable Diseases: United States
Weeks Ending February 19, 1977 and February 21, 1976 - 7th Week

AREA REPORTING	ASEPTIC MENIN- GITIS	BRUCE- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod- borne and Unspecified		Post In- fectious	Type B	Type A	Type Unspecified		
	1977	1977	1977	1977	CUM. 1977	1977	1976	1977	1977	1977	1977	1977	CUM. 1977
UNITED STATES	20	1	4,844	-	2	8	20	2	218	524	176	5	33
NEW ENGLAND	-	-	802	-	-	-	-	-	12	19	18	-	2
Maine	-	-	11	-	-	-	-	-	-	1	-	-	-
New Hampshire*	-	-	14	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	1	-	-	-
Massachusetts	-	-	386	-	-	-	-	-	2	5	13	-	2
Rhode Island	-	-	49	-	-	-	-	-	3	2	-	-	-
Connecticut	-	-	343	-	-	-	-	-	7	10	5	-	-
MIDDLE ATLANTIC	11	-	353	-	-	1	2	-	47	67	17	1	7
Upstate New York	10	-	273	-	-	-	-	-	18	24	5	1	4
New York City	1	-	75	-	-	1	-	-	14	5	3	-	3
New Jersey	-	-	NN	-	-	-	-	-	12	22	7	-	-
Pennsylvania*	-	-	5	-	-	-	2	-	3	16	2	-	-
EAST NORTH CENTRAL	1	-	1,941	-	-	1	5	1	45	115	15	1	1
Ohio	1	-	375	-	-	-	1	1	8	29	-	-	-
Indiana*	-	-	177	-	-	-	-	-	5	7	10	-	-
Illinois	-	-	268	-	-	-	3	-	12	30	5	-	-
Michigan	-	-	478	-	-	1	1	-	8	40	-	1	1
Wisconsin*	-	-	643	-	-	-	-	-	12	9	-	-	-
WEST NORTH CENTRAL	4	1	599	-	-	1	-	1	8	14	11	-	2
Minnesota	-	-	-	-	-	-	-	-	-	-	-	-	1
Iowa	-	-	183	-	-	-	-	-	-	-	-	-	-
Missouri*	4	-	11	-	-	-	-	-	6	8	10	-	1
North Dakota	-	-	11	-	-	-	-	-	-	3	-	-	-
South Dakota	-	-	21	-	-	-	-	-	-	-	-	-	-
Nebraska	-	-	38	-	-	1	-	-	-	-	-	-	-
Kansas	-	1	335	-	-	-	-	1	2	3	1	-	-
SOUTH ATLANTIC	3	-	340	-	-	1	1	-	36	94	24	-	4
Delaware*	-	-	2	-	-	-	-	-	-	-	-	-	-
Maryland*	-	-	14	-	-	-	1	-	10	8	8	-	2
District of Columbia	-	-	2	-	-	-	-	-	-	1	-	-	-
Virginia*	1	-	7	-	-	-	-	-	7	7	5	-	2
West Virginia	-	-	100	-	-	-	-	-	-	8	-	-	-
North Carolina	-	-	NV	-	-	1	-	-	2	17	1	-	-
South Carolina	-	-	49	-	-	-	-	-	5	2	-	-	-
Georgia	1	-	2	-	-	-	-	-	-	19	-	-	-
Florida	1	-	164	-	-	-	-	-	12	32	10	-	-
EAST SOUTH CENTRAL	-	-	82	-	-	2	11	-	26	46	3	-	2
Kentucky	-	-	75	-	-	-	-	-	8	13	1	-	2
Tennessee	-	-	NN	-	-	2	3	-	16	24	2	-	-
Alabama	-	-	-	-	-	-	8	-	1	5	-	-	-
Mississippi	-	-	6	-	-	-	-	-	1	4	-	-	-
WEST SOUTH CENTRAL	1	-	321	-	-	1	-	-	24	98	62	1	3
Arkansas	-	-	-	-	-	-	-	-	-	7	2	-	-
Louisiana	-	-	NN	-	-	1	-	-	9	19	20	-	-
Oklahoma	-	-	44	-	-	-	-	-	2	5	-	-	-
Texas*	1	-	277	-	-	-	-	-	13	67	40	1	3
MOUNTAIN	-	-	185	-	-	-	-	-	17	40	20	-	4
Montana*	-	-	8	-	-	-	-	-	-	1	4	-	-
Idaho	-	-	5	-	-	-	-	-	-	-	2	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-
Colorado*	-	-	153	-	-	-	-	-	10	9	9	-	3
New Mexico	-	-	7	-	-	-	-	-	2	18	1	-	-
Arizona	-	-	NV	-	-	-	-	-	5	11	4	-	1
Utah	-	-	6	-	-	-	-	-	-	1	-	-	-
Nevada	-	-	6	-	-	-	-	-	-	-	-	-	-
PACIFIC	-	-	221	-	2	1	1	-	3	31	6	2	8
Washington	-	-	207	-	1	1	-	-	2	6	4	-	-
Oregon	-	-	3	-	-	-	-	-	1	11	2	-	-
California	NA	NA	NA	NA	-	NA	1	-	NA	NA	NA	NA	4
Alaska	-	-	5	-	1	-	-	-	-	11	-	-	-
Hawaii	-	-	6	-	-	-	-	-	-	3	-	2	4
Guam*	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-
Puerto Rico	-	-	18	-	-	-	-	-	-	6	-	-	-
Virgin Islands	-	-	-	-	-	-	-	-	-	-	-	-	-

NA: Not Available

NN: Not Notifiable

* Delayed report: Asep. Meng.: Pa. add 2 (1976), Tex. add 1 (1977); Brucellosis: Tex. add 1 (1976); Chickenpox: N. Hamp. add 1, Ind. delete 9, Md. add 17, Guam add 4 (1977); Enceph.: Pa. add 2 (1976), Md. add 1 (1977); Hep. B: Pa. add 4, Colo. add 2 (1976), Mo. delete 1, Md. add 5, Mont. add 1 (1977); Hep. A: Pa. add 1 (1976); Wisc. delete 5, Mo. delete 1, Md. add 11, Va. delete 1 (1977); Hep. unsp.: Pa. add 1, Del. add 1, Colo. add 2 (1976), Wisc. delete 2, Mo. delete 1, Md. add 1, Mont. delete 1 (1977)

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending February 19, 1977 and February 21, 1976 - 7th Week

REPORTING AREA	MEASLES (Rubella)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1977	CUMULATIVE		1977	CUMULATIVE		1977	CUM. 1977	1977	1977	CUM. 1977	CUM. 1977
		1977	1976		1977	1976						
UNITED STATES	1,139	6,927	3,707	36	265	216	521	3,800	8	487	1,763	5
NEW ENGLAND	116	320	18	5	15	11	25	190	1	36	98	-
Maine	-	-	-	1	2	-	4	6	-	-	1	-
New Hampshire*	9	123	-	-	1	-	-	18	-	8	9	-
Vermont	47	86	-	1	1	-	-	2	-	-	-	-
Massachusetts	32	54	2	1	4	3	2	31	-	15	51	-
Rhode Island	-	-	12	-	-	2	-	11	-	-	12	-
Connecticut	28	57	4	2	7	6	19	122	1	13	25	-
MIDDLE ATLANTIC	131	859	499	5	42	20	33	229	3	104	274	-
Upstate New York	35	140	243	2	13	6	5	40	3	67	126	-
New York City	6	41	26	-	8	7	19	105	-	8	38	-
New Jersey*	2	15	35	-	12	3	6	65	-	26	85	-
Pennsylvania*	88	663	195	3	9	4	3	19	-	3	25	-
EAST NORTH CENTRAL ..	413	2,158	1,354	3	30	23	208	1,332	1	165	651	-
Ohio	49	105	2	2	18	9	58	219	-	40	174	-
Indiana*	245	1,181	241	-	-	1	4	66	-	84	245	-
Illinois	24	160	113	1	4	1	25	128	-	12	48	-
Michigan	5	137	330	-	6	8	44	416	1	22	121	-
Wisconsin	90	575	668	-	2	4	77	503	-	7	63	-
WEST NORTH CENTRAL ..	240	1,547	57	1	9	21	85	933	-	12	92	1
Minnesota	37	196	11	-	-	2	-	3	-	-	2	-
Iowa	112	888	8	-	1	5	31	532	-	6	55	-
Missouri	5	99	1	1	7	4	14	131	-	1	8	1
North Dakota	-	2	1	-	-	-	-	4	-	-	-	-
South Dakota	2	6	-	-	-	1	3	12	-	-	-	-
Nebraska	64	67	31	-	-	2	1	2	-	-	1	-
Kansas	20	289	5	-	1	7	36	249	-	5	26	-
SOUTH ATLANTIC	50	194	441	6	54	45	24	144	2	27	55	1
Delaware	-	-	26	-	1	-	2	27	-	-	-	-
Maryland*	-	10	233	-	4	2	-	8	-	-	-	-
District of Columbia ..	-	-	1	-	-	-	-	2	-	-	-	-
Virginia	35	121	3	-	3	1	2	28	-	8	16	1
West Virginia	3	26	47	1	5	2	14	43	-	10	15	-
North Carolina	-	1	-	1	12	13	-	3	1	-	10	-
South Carolina	1	2	-	-	4	6	-	2	-	9	12	-
Georgia	11	34	-	-	10	1	-	2	1	-	-	-
Florida	-	-	131	4	15	20	6	29	-	-	2	-
EAST SOUTH CENTRAL ..	5	113	123	5	27	13	12	231	1	101	248	1
Kentucky	1	54	118	2	12	2	-	20	-	5	11	1
Tennessee	3	58	1	-	8	6	12	153	1	96	234	-
Alabama	-	-	-	3	6	3	-	58	-	-	3	-
Mississippi	1	1	4	-	1	2	-	-	-	-	-	-
WEST SOUTH CENTRAL ..	93	291	199	10	47	38	81	381	-	31	71	1
Arkansas	-	1	-	-	1	2	-	-	-	-	-	-
Louisiana	12	19	5	4	20	2	7	19	-	4	5	-
Oklahoma	1	17	175	1	1	10	-	133	-	-	7	-
Texas*	80	254	19	5	25	24	74	229	-	27	59	1
MOUNTAIN	88	367	797	-	4	15	46	148	-	4	42	-
Montana*	24	199	19	-	-	1	-	1	-	-	3	-
Idaho	-	20	260	-	1	-	2	46	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	1	-
Colorado	43	96	18	-	1	8	3	25	-	4	9	-
New Mexico	-	-	3	-	-	1	41	46	-	-	1	-
Arizona*	17	41	75	-	1	3	-	-	-	-	-	-
Utah	-	2	421	-	-	2	-	29	-	-	27	-
Nevada	4	9	1	-	1	-	-	1	-	-	1	-
PACIFIC	3	1,078	219	1	37	30	7	212	-	7	232	1
Washington*	1	89	7	1	6	6	2	47	-	5	74	-
Oregon	2	14	2	-	2	2	5	37	-	2	18	-
California	NA	927	208	-	23	21	NA	113	NA	NA	137	1
Alaska	-	48	-	-	5	-	-	11	-	-	-	-
Hawaii	-	-	2	-	1	1	-	4	-	-	3	-
Guam*	NA	-	4	-	-	1	NA	-	NA	NA	-	-
Puerto Rico	12	72	12	-	-	1	12	69	-	1	3	1
Virgin Islands	-	5	-	-	-	-	-	26	-	-	-	-

NA: Not Available

*Delayed report: Measles: N. Hamp. add 7, N.J. add 3, Ind. delete 9, Guam add 1 (1977); Men. Inf.: Pa. add 1 (1976), Texas delete 1, Ariz. add 1 (1977); Mumps: Md. add 2 (1977); Pertussis: Wash. add 2 (1977); Rubella: Tex. add 12 (1976); N.J. add 82, Mont. add 1 (1977)

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending February 19, 1977 and February 21, 1976 - 7th Week

REPORTING AREA	TUBERCULOSIS		TULA- REMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1977	CUM. 1977	CUM. 1977	1977	CUM. 1977	1977	CUM. 1977	1977	CUMULATIVE		1977	CUMULATIVE		CUM. 1977
									1977	1976		1977	1976	
UNITED STATES	491	3,449	10	7	40	4	13	14,468	124,918	133,444	336	3,014	3,561	263
NEW ENGLAND	8	108	-	-	2	-	-	522	3,301	3,659	20	107	90	2
Maine	1	11	-	-	-	-	-	35	266	352	-	2	5	2
New Hampshire	-	6	-	-	-	-	-	13	117	76	-	-	-	-
Vermont	-	3	-	-	-	-	-	11	76	83	-	2	1	-
Massachusetts	3	47	-	-	1	-	-	306	1,475	1,717	13	76	59	-
Rhode Island	-	8	-	-	-	-	-	35	218	241	1	1	4	-
Connecticut	4	33	-	-	1	-	-	122	1,149	1,190	6	26	21	-
MIDDLE ATLANTIC	70	457	-	-	8	1	1	1,865	15,246	13,072	60	452	588	4
Upstate New York	4	52	-	-	1	1	1	489	1,774	1,887	7	37	35	4
New York City	25	145	-	-	6	-	-	816	8,112	5,418	38	289	385	-
New Jersey	23	147	-	-	1	-	-	138	1,866	2,204	6	62	87	-
Pennsylvania*	18	113	-	-	-	-	-	422	3,494	3,563	9	64	81	-
EAST NORTH CENTRAL	111	552	2	-	5	-	-	2,895	19,605	22,049	32	363	344	12
Ohio	14	113	1	-	1	-	-	761	5,193	5,631	8	93	77	-
Indiana	14	51	-	-	-	-	-	166	1,523	2,047	7	19	15	1
Illinois	49	195	-	-	1	-	-	1,164	7,073	8,066	9	201	196	-
Michigan	30	160	-	-	3	-	-	587	4,201	4,284	6	38	44	1
Wisconsin	4	33	1	-	-	-	-	218	1,615	2,021	2	12	12	10
WEST NORTH CENTRAL	13	114	1	2	4	1	3	775	6,811	6,585	6	63	67	54
Minnesota	-	19	-	-	1	-	-	154	1,111	1,393	4	23	18	24
Iowa	-	13	-	-	-	-	-	93	835	897	-	5	9	10
Missouri*	6	51	1	-	1	1	3	370	2,999	2,384	-	18	29	4
North Dakota	-	1	-	-	-	-	-	8	95	93	-	-	-	10
South Dakota	-	2	-	-	-	-	-	22	200	217	-	1	1	-
Nebraska	-	3	-	-	-	-	-	NA	491	571	-	6	4	-
Kansas	7	25	-	2	2	-	-	128	1,080	1,030	2	10	6	6
SOUTH ATLANTIC	129	877	5	2	8	2	4	4,271	29,298	31,523	137	906	1,065	33
Delaware	2	7	-	-	-	-	-	44	398	430	1	8	10	-
Maryland*	23	115	-	-	-	-	-	636	3,088	4,123	7	54	87	-
District of Columbia	12	42	-	-	-	-	-	287	1,734	1,928	6	95	91	-
Virginia	13	109	-	1	3	1	1	370	3,205	3,602	8	77	91	1
West Virginia	4	30	-	1	1	-	-	41	398	389	-	-	5	1
North Carolina*	21	157	-	-	-	1	3	930	4,589	4,839	17	131	189	-
South Carolina	17	87	2	-	-	-	-	184	2,697	2,964	2	37	57	-
Georgia	5	90	3	-	-	-	-	698	5,671	5,790	36	167	143	27
Florida	32	240	-	-	4	-	-	1,081	7,518	7,458	60	337	392	4
EAST SOUTH CENTRAL	39	297	-	-	-	-	3	1,198	10,526	11,964	13	109	158	2
Kentucky	5	55	-	-	-	-	1	125	1,411	1,485	2	13	24	-
Tennessee*	14	109	-	-	-	-	2	581	4,463	4,764	1	35	70	2
Alabama	10	84	-	-	-	-	-	300	2,718	3,120	-	17	26	-
Mississippi*	10	49	-	-	-	-	-	192	1,934	2,595	10	44	38	-
WEST SOUTH CENTRAL	88	404	1	-	-	-	2	1,984	17,018	20,057	56	396	395	109
Arkansas	9	34	-	-	-	-	-	168	1,316	1,870	-	7	15	6
Louisiana	30	99	-	-	-	-	-	285	2,335	2,809	1	71	93	-
Oklahoma	6	42	-	-	-	-	1	168	1,420	1,697	-	10	21	35
Texas	43	229	1	-	-	-	1	1,363	11,947	13,681	55	308	266	68
MOUNTAIN	18	86	1	3	5	-	-	596	5,013	5,317	7	63	115	3
Montana	-	3	1	-	-	-	-	33	286	270	-	-	1	3
Idaho	1	9	-	-	-	-	-	31	252	259	-	5	3	-
Wyoming	-	3	-	-	-	-	-	21	155	132	-	5	4	-
Colorado*	3	12	-	2	3	-	-	149	1,306	1,307	2	20	37	-
New Mexico	1	6	-	-	-	-	-	72	663	1,192	-	10	35	-
Arizona*	10	44	-	1	1	-	-	194	1,445	1,443	5	20	26	-
Utah	-	2	-	-	1	-	-	44	283	320	-	2	1	-
Nevada	3	7	-	-	-	-	-	52	623	394	-	1	8	-
PACIFIC	15	554	-	-	8	-	-	361	18,100	19,218	5	555	739	44
Washington*	NA	9	-	-	-	-	-	178	1,392	1,646	NA	10	15	-
Oregon	5	25	-	-	1	-	-	NA	1,319	1,465	5	25	24	-
California	NA	413	-	NA	7	NA	-	NA	14,383	15,159	NA	511	688	36
Alaska	-	8	-	-	-	-	-	129	599	540	-	1	-	8
Hawaii	10	99	-	-	-	-	-	54	407	408	-	8	12	-
Guam*	NA	5	-	NA	-	NA	-	NA	21	61	NA	-	-	-
Puerto Rico	3	57	-	1	1	-	-	65	425	350	8	83	60	5
Virgin Islands	-	-	-	-	-	-	-	2	22	43	-	-	14	-

NA: Not Available

*Delayed report: TB: Mo. add 11, Md. delete 2, N.C. delete 12, Colo. add 3 (1976), N. Hamp. delete 1, Md. add 15, N.C. delete 1, Ariz. delete 1, Guam add 1 (1977); RMSF: Pa. add 1 (1976); GC: Md. add 622 civ., add 7 mil.; Wash. add 221 civ, Guam add 9 civ. (1977); Syphilis: Md. add 10 civ. add 3 mil., Tenn. delete 8 civ., Miss. delete 1 civ. (1977)

Table IV
Deaths in 121 United States Cities*
Week Ending February 19, 1977 - 7th Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES	REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year			ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	
NEW ENGLAND	647	429	154	35	13	38	SOUTH ATLANTIC	1,268	736	352	84	58	59
Boston, Mass.	196	117	59	7	5	10	Atlanta, Ga.	154	91	35	18	5	7
Bridgeport, Conn.	39	27	10	2	-	3	Baltimore, Md.	196	102	70	13	4	2
Cambridge, Mass.	22	13	6	1	1	2	Charlotte, N. C.	57	24	25	7	1	1
Fall River, Mass.	28	23	4	1	-	1	Jacksonville, Fla.	87	55	25	3	1	3
Hartford, Conn.	47	27	11	5	2	2	Miami, Fla.	126	78	35	4	6	5
Lowell, Mass.	38	30	7	1	-	2	Norfolk, Va.	79	44	16	7	10	6
Lynn, Mass.	8	6	2	-	-	-	Richmond, Va.	107	64	31	5	3	7
New Bedford, Mass.	28	20	5	1	1	2	Savannah, Ga.	35	24	8	2	1	7
New Haven, Conn.	52	34	10	5	1	1	St. Petersburg, Fla.	113	90	18	1	3	4
Providence, R.I.	53	36	10	5	-	3	Tampa, Fla.	94	56	23	6	5	9
Somerville, Mass.	7	2	5	-	-	-	Washington, D. C.	176	79	53	17	19	7
Springfield, Mass.	43	30	9	3	1	2	Wilmington, Del.	44	29	13	1	-	1
Waterbury, Conn.	32	23	9	-	-	4							
Worcester, Mass.	54	41	7	4	2	6							
MIDDLE ATLANTIC	3,413	2,187	834	203	98	154	EAST SOUTH CENTRAL	732	447	191	44	25	32
Albany, N. Y.	46	32	9	1	3	2	Birmingham, Ala.	119	65	35	7	10	1
Allentown, Pa.	32	20	9	-	2	-	Chattanooga, Tenn.	45	29	10	4	1	1
Buffalo, N. Y.	161	93	48	9	7	9	Knoxville, Tenn.	44	34	9	-	-	2
Camden, N. J.	46	29	12	2	2	1	Louisville, Ky.	120	71	36	8	4	11
Elizabeth, N. J.	32	24	6	2	-	-	Memphis, Tenn.	151	94	34	9	5	1
Erie, Pa.	46	33	8	2	3	2	Mobile, Ala.	92	57	22	8	-	3
Jersey City, N. J.	67	44	23	-	-	-	Montgomery, Ala.	57	38	9	3	4	7
Newark, N. J.	79	40	21	11	3	3	Nashville, Tenn.	104	59	36	5	1	6
New York City, N. Y.	1,614	1,057	378	96	41	75	WEST SOUTH CENTRAL	1,143	637	311	84	48	38
Paterson, N. J.	61	37	9	7	7	2	Austin, Tex.	51	35	9	2	3	7
Philadelphia, Pa.	595	358	160	45	14	12	Baton Rouge, La.	18	10	5	2	-	1
Pittsburgh, Pa.	202	123	57	10	4	18	Corpus Christi, Tex.	43	29	10	-	2	1
Reading, Pa.	36	28	6	2	-	3	Dallas, Tex.	156	87	49	10	5	3
Rochester, N. Y.	113	69	31	6	4	10	El Paso, Tex.	56	32	11	4	4	6
Schenectady, N. Y.	24	20	3	1	-	2	Fort Worth, Tex.	80	44	21	8	4	-
Scranton, Pa.	49	31	14	1	2	-	Houston, Tex.	223	101	61	30	15	4
Syracuse, N. Y.	90	62	17	5	3	5	Little Rock, Ark.	55	35	16	1	1	4
Trenton, N. J.	59	36	13	3	3	3	New Orleans, La.	149	84	51	5	3	-
Utica, N. Y.	20	17	3	-	-	3	San Antonio, Tex.	166	99	36	16	2	7
Yonkers, N. Y.	41	34	7	-	-	4	Shreveport, La.	59	35	17	3	4	2
							Tulsa, Okla.	87	46	25	3	5	3
EAST NORTH CENTRAL	2,503	1,486	667	157	111	82	MOUNTAIN	548	319	139	38	31	13
Akron, Ohio	76	55	10	4	6	-	Albuquerque, N. Mex.	47	31	9	5	1	3
Canton, Ohio	31	18	13	-	-	2	Colorado Springs, Colo.	25	18	4	2	-	1
Chicago, Ill.	602	347	139	54	35	9	Denver, Colo.	126	76	31	4	10	4
Cincinnati, Ohio	197	115	64	12	3	3	Las Vegas, Nev.	31	14	13	2	-	2
Cleveland, Ohio	196	110	68	9	4	7	Ogden, Utah	26	17	3	2	2	1
Columbus, Ohio	132	74	37	7	8	7	Phoenix, Ariz.	135	71	40	13	9	-
Dayton, Ohio	116	61	41	5	5	4	Pueblo, Colo.	27	21	4	-	1	2
Detroit, Mich.	281	165	72	22	12	8	Salt Lake City, Utah	66	37	15	5	7	-
Evansville, Ind.	57	39	17	1	-	3	Tucson, Ariz.	65	34	20	5	1	-
Fort Wayne, Ind.	55	36	13	5	-	5							
Gary, Ind.	23	14	7	-	-	2	PACIFIC	1,791	1,113	448	105	64	44
Grand Rapids, Mich.	52	32	13	4	3	6	Berkeley, Calif.	14	9	2	2	1	-
Indianapolis, Ind.	151	74	46	11	11	5	Fresno, Calif.	50	33	7	3	1	2
Madison, Wis.	44	23	9	5	3	6	Glendale, Calif.	26	19	6	1	-	-
Milwaukee, Wis.	145	102	28	5	4	-	Honolulu, Hawaii	62	35	18	3	3	-
Peoria, Ill.	40	25	10	-	5	2	Long Beach, Calif.	92	63	26	1	2	1
Rockford, Ill.	61	41	13	3	2	5	Los Angeles, Calif.	587	369	139	39	20	10
South Bend, Ind.	68	52	10	4	2	5	Oakland, Calif.	59	32	16	7	1	-
Toledo, Ohio	104	61	31	4	7	3	Pasadena, Calif.	40	26	10	1	3	1
Youngstown, Ohio	72	42	26	2	1	-	Portland, Oreg.	134	79	37	9	7	2
WEST NORTH CENTRAL	815	493	218	41	41	38	Sacramento, Calif.	68	46	12	6	1	3
Des Moines, Iowa	68	44	19	2	3	1	San Diego, Calif.	139	90	33	7	4	4
Duluth, Minn.	37	27	8	-	2	2	San Francisco, Calif.	210	125	58	13	6	3
Kansas City, Kans.	29	16	12	-	-	1	San Jose, Calif.	56	32	17	2	-	3
Kansas City, Mo.	123	81	30	5	4	9	Seattle, Wash.	147	85	45	7	9	7
Lincoln, Nebr.	32	20	11	-	1	-	Spokane, Wash.	56	36	9	3	5	5
Minneapolis, Minn.	99	58	26	6	6	7	Tacoma, Wash.	51	34	13	1	1	3
Omaha, Nebr.	73	44	15	7	4	2							
St. Louis, Mo.	210	116	58	15	16	9	TOTAL	12,860	7,847	3,314	791	489	498
St. Paul, Minn.	66	45	13	4	3	-	Expected Number	12,736	7,866	3,271	777	405	557
Wichita, Kans.	78	42	26	2	2	7							

*By place of occurrence and week of filing certificate. Excludes fetal deaths. (Bridgeport, Conn.) Estimate based on average percent of divisional total.

The Morbidity and Mortality Weekly Report, circulation 52,000, is published by the Center for Disease Control, Atlanta, Georgia. The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Send reports to: Center for Disease Control, Attn.: Editor, Morbidity and Mortality Weekly Report, Atlanta, Georgia 30333.

Send mailing list additions, deletions, and address changes to: Center for Disease Control, Attn.: Distribution Services, GSO, 1-SB-36, Atlanta, Georgia 30333. When requesting changes be sure to give your former address, including zip code and mailing list code number, or send an old address label.

Maternal Deaths — Continued

other methods of discovering maternal deaths may uncover additional deaths, thus producing an apparent increase in the maternal mortality rate.

Reported by M Gregory, MD, M Kreitzer, MD, L Ziskin, MD, MPH, New Jersey Dept of Health; Program Evaluation Br, Family Planning Evaluation Div, Bur of Epidemiology, CDC.

Tuberculosis — United States, 1976

There were 32,549 tuberculosis cases reported to CDC in 1976. This figure, considered a provisional total until final corrected case data for 1976 are received by the Tuberculosis Control Division, represents a decrease of 1,005 cases—3% below the 1975 provisional total of 33,554. Twenty-one states reported more cases in 1976 than in 1975; 29 states and the District of Columbia reported fewer cases.

Reported by the Tuberculosis Control Div, Bur of State Services, CDC.

Editorial Note: The downward secular trend in tuberculosis morbidity was interrupted in 1975 as a result of changes in reporting practices. The resumption of a downward trend in 1976 was anticipated, and a further decline is expected in 1977.

TABLE 1. Tuberculosis cases, provisional totals by state, 1975 and 1976.

State	1975	1976	% Change	State	1975	1976	% Change
UNITED STATES	33,554	32,549	-3.0	Missouri	549	591	7.7
Alabama	804	820	2.0	Montana	87	52	-40.2
Alaska	62	94	51.6	Nebraska	40	56	40.0
Arizona	430	405	-5.8	Nevada	48	40	-16.7
Arkansas	489	434	-11.0	New Hampshire	34	50	47.1
California	3,880	3,773	-2.8	New Jersey	1,214	1,221	0.6
Colorado	223	148	-33.6	New Mexico	140	177	26.4
Connecticut	262	230	-12.2	New York	3,267	3,137	-4.0
Delaware	132	75	-43.2	North Carolina	1,200	1,258	4.8
District of Columbia	373	314	-15.8	North Dakota	19	39	105.3
Florida	1,807	1,630	-9.8	Ohio	1,274	946	-25.7
Georgia	1,087	869	-20.1	Oklahoma	309	378	22.3
Hawaii	570	653	14.6	Oregon	206	203	-1.5
Idaho	35	33	-5.7	Pennsylvania	1,580	1,501	-5.0
Illinois	1,378	1,648	19.6	Rhode Island	139	83	-40.3
Indiana	569	515	-9.5	South Carolina	481	501	4.2
Iowa	127	116	-8.7	South Dakota	72	62	-13.9
Kansas	204	138	-32.4	Tennessee	1,110	910	-18.0
Kentucky	597	577	-3.4	Texas	2,481	2,403	-3.1
Louisiana	489	609	24.5	Utah	53	54	1.9
Maine	77	76	-1.3	Vermont	30	36	20.0
Maryland	1,191	933	-21.7	Virginia	860	998	16.0
Massachusetts	717	675	-5.9	Washington	467	431	-7.7
Michigan	1,279	1,349	5.5	West Virginia	275	272	-1.1
Minnesota	191	220	15.2	Wisconsin	174	270	55.2
Mississippi	441	476	7.9	Wyoming	31	20	-35.5

Reye Syndrome — United States

United States: Because of recent influenza B activity in many parts of the United States (MMWR 26 [4], 1977), the Viral Diseases Division, Bureau of Epidemiology, conducted a telephone survey of 30 state health departments to determine the occurrence of Reye syndrome. In the 20 states reporting influenza B, 9 states reported 20 cases of suspect Reye syndrome in the first 6 weeks of 1977; there were no reported cases in the 10 states not reporting influenza B. Although detailed information concerning most of these 20 cases has not yet been received, 5 of the 8 children whose outcome is known died.

Colorado: In Colorado, where there has recently been influenza B activity in many rural areas, a 14-year-old girl was hospitalized with a reported second episode of Reye syndrome following an influenza-like illness. She had been hospitalized on February 2, 1976, at which time a diagnosis of Reye syndrome was made. On February 8, 1977, she developed fever, cough, and myalgia. After several days of

illness, she began to vomit and became irritable, combative, and finally lethargic. On admission to the hospital on February 14, 1977, she was in stage II coma (1). The SGOT reached 405 IU/l and the serum NH_3 230 $\mu\text{g/dl}$. She was treated with IV glucose and currently is doing well. A viral agent has not been isolated or serologically confirmed.

Reported by J Baublis, MD, PhD, University of Michigan Medical Center, Ann Arbor; J Paulsen, University of Colorado Medical Center, Denver; M Welling, RN, MS, Denver (CO) Children's Hospital; NS Haynor, MD, State Epidemiologist, Michigan Dept of Public Health; TM Vernon, MD, State Epidemiologist, Director, Colorado Dept of Health; and Viral Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: Although Reye syndrome is not nationally reportable, many states require notification of the syndrome. The states, in turn, inform CDC. Three hundred-seventy-nine cases of Reye syndrome were reported following the 1973-74 outbreak, 55 in 1975 and 52 in 1976. The syndrome has been associated with many different viruses,

Reye Syndrome — Continued

including influenza A and varicella zoster virus. The majority of the cases of Reye syndrome in 1973-74 were geographically and temporally associated with major outbreaks of influenza B in the United States. The case-fatality ratio of Reye syndrome that winter was 41% (2). In recent years, Reye syndrome has been diagnosed most frequently in January, February, and March.

Second episodes of Reye syndrome have been infrequently reported. At the University of Michigan Medical Center, where detailed information has been gathered on 62 consecutive cases, there have been 2 confirmed and 1

probable second episode of Reye syndrome. In the 62 families with patients there were 3 families that had had Reye syndrome or Reye syndrome-like illness in 1 or more siblings of the index patient not included in the 62 studied cases. It may well be that in addition to presumed viral and environmental factors, genetic differences may predispose certain children to develop Reye syndrome.

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1. Aoki Y, Lombroso T: Prognostic value of electroencephalography in Reye's syndrome. *Neurology* 23:333, 1973
2. Corey L, Rubin RJ, Hattwick MAW, Noble GR, Cassidy E: A nationwide outbreak of Reye's syndrome: Its epidemiologic relationship to influenza B. *Am J Med* 61:615-625, 1976

Influenza — Worldwide

United States: During the week ending February 19, isolates of influenza B were reported for the first time this year from Arkansas and New Mexico (from school outbreaks) and from Alabama, Florida, Massachusetts, New York, and Wisconsin (sporadic cases). Illness due to influenza B in school-age children continues to be widespread in the eastern and south central United States. Since July 3, 1976, a total of 744 isolates of influenza B have been reported to CDC.

Isolates of a A/Victoria/3/75-like virus from sporadic cases of influenza have been made in Florida, Georgia, New York, North Carolina, and South Carolina. An increase in visits for influenza-like illness was noted at the Student Health Center of a Tuscaloosa, Alabama, university during the first week of February, and 2 isolates of A/Victoria/3/75-like virus were made from ill university students. Absenteeism in elementary and secondary schools in the Tuscaloosa area increased during the week ending February 12 but has since declined. Since July 3, 1976, a total of 57 isolates of influenza A/Victoria/75 have been made in the United States.

The Pennsylvania State Health Department has reported 7 cases of myositis following influenza-like illness in children. The cases have occurred primarily in kindergarten and

elementary school children. In 1 family both parents and 1 child had myositis. The cases have typically presented with severe leg pain, objective muscle tenderness, but no neurological findings several days following onset of an influenza-like illness that occurred in an epidemic setting. The cases have been reported over a 4-week period beginning January 18. While each of the patients had been associated with an outbreak of clinical influenza in schools marked by absenteeism of 30% or more, laboratory confirmation of influenza other than seroconversion to influenza B is still pending. While myalgia is a common symptom of influenza illness, myositis is less common. It has been most frequently reported following influenza B infection in children (1).

Reported by the state epidemiologists of Alabama, Arkansas, Florida, Georgia, Massachusetts, New Mexico, New York, North Carolina, Pennsylvania, South Carolina, and Wisconsin; and the National Influenza Immunization Program, CDC.

Worldwide: A single isolate of influenza A was reported from a 17-year-old female in Glasgow, Scotland. No outbreaks of influenza nor isolates of A/New Jersey/76 from humans have been recently reported.

Reported by Communicable Disease Scotland 77(5): 10, 1977.

Reference

1. Kilbourne ED (ed): *The Influenza Viruses and Influenza*. New York, Academic Press, 1975. p 416

Addendum, Vol. 26, No. 6

p 43 In the article, "Isolation of Mycobacteria Species from Porcine Heart Valve Prostheses — United States," the following names should be included in

the credits: LF Laskowski, PhD, N Frank, BS, SM (AAM), Microbiology Laboratory, St. Louis University Hospital, St. Louis, MO.

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